PATENT CLAIMS

1. A coating system for implants having a metallic main body, which is possibly covered with one or more intermediate layers, and in which the coating system comprises a coating applied thereto to increase the tissue compatibility,
characterized in that the coating comprises a polysaccharide layer made of

   (a) chitosan and
   (b) hyaluronic acid and/or hyaluronic acid derivatives.

2. The coating system according to Claim 1, characterized in that the polysaccharide layer contains chitosan in partial areas or partial layers.

3. The coating system according to Claim 2, characterized in that the polysaccharide layer comprises an adhesion-promoting layer made of chitosan.

4. The coating system according to Claim 3, characterized in that the adhesion-promoting layer is 0.1 to 50 µm, particularly 1 to 10 µm thick.

5. The coating system according to one or more of the preceding claims, characterized in that a component of the chitosan in the total weight of the polysaccharide layer is not more than 50 weight-percent.

6. The coating system according to Claim 1, characterized in that the hyaluronic acid and hyaluronic acid derivatives have an average molecular weight between 300,000 and 500,000 Dalton after sterilization of the implant.

7. The coating system according to Claim 6, characterized in that the average molecular weight is between 380,000 and 420,000 Dalton.

8. The coating system according to one or more of the preceding claims, characterized in that the polysaccharide layer has a composition such

that the in vivo degradation of the polysaccharide layer is slowed from the outside in the direction of the main body of the implant.

9. The coating system according to Claim 8, characterized in that an internal area of the polysaccharide layer is not degradable, at least completely, within two years.

10. The coating system according to Claim 9, characterized in that the internal area is 3 to 50 µm, particularly 5 to 20 µm thick.

11. The coating system according to Claim 8, characterized in that an external area of the polysaccharide layer is degradable in vivo within 100 days.

12. The coating system according to Claim 11, characterized in that the external area is 10 to 250 µm, particularly 50 to 150 µm thick.

13. The coating system according to Claim 8, characterized in that the polysaccharide layer comprises at least two partial layers having different degradation behaviors, the degradation behavior within each partial layer being able to be fixed continuously changeably or constant over the partial layer.

14. The coating system according to Claim 13, characterized in that the polysaccharide layer comprises an internal partial layer which is degradable by not more than 20 weight-percent in vivo within 2 years.

15. The coating system according to Claim 14, characterized in that the internal partial layer is 3 to 50 µm, particularly 5 to 20 µm thick.

16. The coating system according to Claim 13, characterized in that the polysaccharide layer comprises an external partial layer which is degradable by at least more than 50 weight-percent within 100 days in vivo.

17. The coating system according to Claim 16, characterized in that the external partial layer is 10 to 250 µm, particularly 50 to 150 µm thick.

18. The coating system according to one or more of the preceding claims, characterized in that a layer thickness of the polysaccharide layer is between 10-400 µm.

19. The coating system according to Claim 18, characterized in that the layer thickness is 50-120 µm.

20. The coating system according to one more of the preceding claims, characterized in that the hyaluronic acid, the hyaluronic acid derivatives, and the chitosan are components of the polysaccharide layer as individual substances, copolymers, or block polymers made of hyaluronic acid, hyaluronic acid derivatives, and chitosan, or in the form of mixtures of the above-mentioned individual substances.

21. The coating system according to one or more of the preceding claims, characterized in that the polysaccharide layer is immobilized covalently or through physisorption on the implant.

22. A use of a coating system according to one or more of Claims 1 through 21 for endovascular implants, particularly stents.

23. A use of a coating system according to one or more of Claims 1 through 21 for stimulation electrodes for use with an implantable tissue stimulator, particularly a pacemaker, defibrillator, bone stimulator or neurostimulator.